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DEVELOPING TECHNOLOGY TOOLS OF STUDENTS' READING MATERIAL

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Abstrak

Penelitian ini bertujuan mengidentifikasi kebutuhan materi membaca bahasa Inggris siswa kelas X SMAN 1 Sambelia dan mengembangkan media pembelajaran berbasis teknologi yang sesuai. Penelitian menggunakan pendekatan research and development (R&D) dengan tahapan ADDIE, yaitu analisis, desain, pengembangan, implementasi, dan evaluasi. Analisis kebutuhan digunakan untuk merancang materi teks deskriptif yang berkaitan dengan kehidupan sehari-hari. Produk E-Course berbentuk aplikasi Android dengan materi membaca, ilustrasi, audio teks, dan latihan. Draf produk ditinjau oleh ahli, diuji coba, kemudian direvisi berdasarkan masukan. Hasil yang dilaporkan dalam skripsi menunjukkan bahwa siswa memerlukan materi yang menarik, mudah digunakan, dan dekat dengan pengalaman mereka. Produk dinilai sesuai dengan kebutuhan pembelajaran, tetapi masih memiliki keterbatasan dalam variasi konten. Karena skripsi tidak memberikan data komparatif hasil belajar yang memadai, penelitian ini tidak menyimpulkan peningkatan kemampuan membaca secara kausal.

Kata kunci: *reading materials; technology tools; Android application; E-Course; ADDIE*

Abstract

This research aimed to identify the English reading-material needs of tenth-grade students at SMAN 1 Sambelia and develop an appropriate technology-supported learning resource. The study adopted a research and development (R&D) approach organized around the ADDIE stages of analysis, design, development, implementation, and evaluation. Needs analysis informed the

preparation of descriptive-text materials connected to learners' everyday experiences. The resulting E-Course was an Android application containing reading passages, illustrations, text-based audio, and exercises. The draft product underwent expert review, a classroom try-out, and revision. The thesis reported that learners needed engaging, accessible materials and responded favorably to a type of resource they had not previously used at school. The product was considered appropriate for the stated learning needs, although its content variety remained limited. Because the source study did not provide sufficient comparative learning-outcome data, the findings support conclusions about product development and perceived suitability rather than a causal improvement in reading proficiency.

Keywords: *reading materials; technology tools; Android application; E-Course; ADDIE*

INTRODUCTION

Reading is an essential component of English as a foreign language (EFL) learning because students need to recognize written language, identify main ideas, make inferences, and connect textual information with prior knowledge. The ability to understand a written passage supports learning across school subjects and provides access to information beyond the classroom. Grellet (1999) described reading as a purposeful activity that requires the reader to construct meaning rather than merely identify isolated words. Johnson (2008) also situated reading within a broader set of literacy practices that involve comprehension and active engagement. For secondary-school learners, these perspectives suggest that effective reading materials should offer comprehensible texts together with activities that guide interpretation.

English-language materials need to reflect the learning context in which they are used. Students are more likely to recognize the relevance of reading when topics, tasks, and examples connect with their experiences and educational goals. Harmer (1983) emphasized the importance of classroom activities and appropriate instructional resources in language teaching, while Brown (2003) explained the role of assessment in understanding learners' performance. Materials development therefore begins with

identifying learners' needs, considering curriculum expectations, and determining what kinds of texts and exercises can make reading practice meaningful.

Technology has expanded the forms in which reading materials can be presented. Digital resources may combine written passages with illustrations, recorded audio, and interactive exercises in a single environment. UNESCO (2002) discussed information and communication technology as a resource for educational development, while Rusman (2015) described technology-supported learning in Indonesian educational settings. Technology does not automatically improve comprehension, but it can broaden access to different modes of presentation and enable teachers to organize resources beyond conventional printed materials.

Ahmadi (2018) reviewed the use of technology in English-language learning, drawing attention to opportunities created by digital tools for language practice. Cakici (2016) similarly examined information and communication technology in EFL teaching. Hidayati (2016) discussed the integration of ICT in English teaching and learning in Indonesia. These studies support the educational relevance of investigating digital reading resources, although the benefits of any particular application depend on its content, usability, implementation, and the learning context.

Teachers' use of digital materials is also influenced by institutional and professional factors. Ertmer and Ottenbreit-Leftwich (2010) explained that teachers' knowledge, confidence, beliefs, and school culture intersect in technology-related instructional change. Mwendwa (2017) considered perceptions of ICT integration in schools, and Mpofu and Mathys (2011) discussed technology adoption in a different organizational context. Taken together, these perspectives indicate that the availability of an application is only one aspect of its potential classroom usefulness.

Materials development should distinguish between a resource that appears attractive and a resource that demonstrably supports learning. McKay (2006) stressed the importance of assessment appropriate to learners, and Latief (2015) discussed research

procedures in language-learning studies. In a development project, expert review and user response can help improve the product, but claims about improved achievement require appropriately collected performance data. This distinction is especially important when interpreting a classroom try-out of a new application.

Local research at Universitas Pendidikan Mandalika provides additional context. Firman, Haerazi, and Dehghani (2021) investigated difficulties in comprehending English reading texts among secondary-school learners, highlighting challenges that make explicit reading support relevant. Sandiarsa and Suhaili (2019) examined alternative approaches to classroom speaking achievement, reflecting a wider institutional interest in evaluating language-teaching practices. These studies do not evaluate the Android product developed here, but they situate the work within research on English skills and instructional design at UNDIKMA.

The original thesis by Monika Damara Vita addressed a practical need at SMAN 1 Sambelia: the development of English reading materials that could be delivered through a technology tool. It focused on tenth-grade descriptive texts and the creation of an Android-based E-Course with audio and visual support. The present article reports the development process and the findings recorded in the thesis. Its questions are what kinds of reading materials the learners needed, how the E-Course was developed, and what the documented review and try-out suggested about the product's suitability. The article preserves the descriptive scope of the source study and does not add uncollected outcome data.

METHOD

The study used a research and development (R&D) design to produce English reading materials for tenth-grade students at SMAN 1 Sambelia. The thesis described its procedure through the ADDIE model: analysis, design, development, implementation, and evaluation. The main outcome of the project was an Android-based E-Course application. The approach was appropriate to the aim of producing and refining a

learning resource rather than testing a comparison between two instructional treatments. The source thesis did not report a sufficiently clear numerical sample profile for the try-out; therefore, this article does not invent a participant count.

During analysis, the researcher identified students' target and learning needs and considered the English syllabus used at the school. The thesis reported that the reading content was aligned with the curriculum and concentrated on descriptive texts. The analysis emphasized the need for materials that were understandable, interesting, and related to learners' daily lives. The needs-analysis findings were used to establish the scope of the product rather than being presented as a standardized psychometric measure.

During design, the researcher organized the content into course grids and outlined units covering the purpose, features, and examples of descriptive texts. Reading passages were accompanied by pictures, audio, and exercises. The researcher selected and adapted materials from available course books and online sources and prepared equipment for producing text and sound. These decisions reflected the aim of integrating reading practice with multimodal support.

During development, the draft materials were assembled into an E-Course application intended for Android devices. The thesis described application screens including a logo, introductory information, course choices, and reading materials with audio and illustrative elements. The product was submitted for expert validation. The expert's feedback was used to revise the materials, including attention to the content and presentation of reading texts. The original report characterized the material validation positively but did not supply a complete numerical validity index in the available results narrative.

During implementation and evaluation, the researcher tried out the product and considered students' responses. The thesis stated that the E-Course was well received because comparable resources had not previously been used in the school. Following

feedback and revision, the final version was prepared for classroom reading activities. The analysis was descriptive: the article reports documented development decisions, expert comments, and stated responses. No independent pretest–posttest effect estimate or controlled comparison was available for reanalysis.

The methodological limitations follow from the evidence reported in the thesis. Product suitability was judged primarily through needs analysis, expert review, and classroom experience. The source did not establish long-term use, comparative reading gains, standardized usability testing, or independent replication. Accordingly, the results are interpreted as an account of the development and initial appraisal of a reading application, not as proof of its effectiveness across schools.

Table 1. ADDIE stages and documented development activities

Stage	Activities recorded in the thesis	Output
Analysis	Needs analysis and curriculum review	Reading-material requirements
Design	Course grids and descriptive-text unit planning	Draft instructional content
Development	Android E-Course production and expert review	Revised application
Implementation	Classroom try-out and user response	Initial usability feedback
Evaluation	Revision based on expert and try-out comments	Final E-Course product

RESULTS AND DISCUSSION

Results of the needs analysis

The needs analysis indicated that students required English reading materials that were engaging, accessible, and related to familiar experiences. The researcher responded by concentrating on descriptive texts, a genre identified in the school syllabus. This focus

provided a manageable starting point for learners who needed to identify descriptions, understand key information, and relate written content to concrete subjects. The thesis did not present a complete numerical distribution of individual student preferences; therefore, the needs are reported as qualitative findings rather than percentages.

The emphasis on relevance is consistent with principles of reading-material selection. Grellet (1999) explained that reading tasks should have clear purposes, and Johnson (2008) emphasized meaningful literacy instruction. In this case, familiar topics were used as an entry point to reading practice. Nevertheless, familiarity alone does not guarantee comprehension; students still require guidance in vocabulary, identifying textual structure, and interpreting ideas.

Course grids and instructional design

The course grids translated the needs analysis into a sequence of materials. The content centered on descriptive texts and included explanations, examples, and activities. The researcher introduced texts about places and cultural or historical topics, including references to Detroit and the Aral Sea. The intention was to connect English reading practice with wider knowledge while providing illustrations and audio to support engagement. The thesis described this content organization but did not provide evidence that all units were equally accessible to every learner.

The combination of reading passages and supporting media was a central feature of the design. Written language remained the core learning material, while images helped establish context and audio provided an additional representation of the text. This approach corresponds to the broader educational uses of ICT discussed by UNESCO (2002) and Rusman (2015). However, the presence of several media formats should not be confused with a measured improvement in learning: the instructional contribution of each component was not separately tested.

Development of the Android E-Course

The final product was an Android application identified as E-Course. The thesis described its home and course screens, reading-material sections, and audio-supported passages. The researcher prepared the source texts, adapted instructional materials, and used recording equipment for selected audio elements. The application was intended to allow students to engage with descriptive texts in a format different from conventional printed materials.

An important design choice was to combine content and practice within a single application. Students could encounter a passage, listen to the accompanying audio, view relevant illustrations, and respond to exercises. This structure may help organize learning activities and make the resource easier to navigate, but the source study did not report technical performance metrics, device-compatibility testing across Android versions, or accessibility testing. Claims about ease of use should therefore be understood as the initial judgments reported by the researcher and users.

Expert review, try-out, and revisions

The thesis reported that the material-validation result was good while also requiring further revision. The expert recommended improvements to the content, and the researcher revised the draft before finalizing the E-Course. The classroom try-out produced favorable responses, particularly because students had not previously encountered the same type of technology-supported reading material at school. These responses were treated as feedback about novelty and suitability, not as direct evidence of improved reading achievement.

Expert validation can help identify omissions, confusing explanations, or mismatches between the product and curriculum. Latief (2015) and Sugiyono (2011) provide methodological context for development-oriented research. The revisions described in the thesis are therefore a substantive part of the research process: they demonstrate that the initial product was not simply released without review. However, a reproducible

account would require fuller documentation of the validation instrument, scoring rubric, expert qualifications, and specific changes made after each review.

Discussion of technology integration and reading support

The findings align with the argument that digital tools can diversify English-language learning resources. Ahmadi (2018) and Cakici (2016) examined technology use in English education, while Hidayati (2016) considered ICT integration in the Indonesian setting. The E-Course reflects this broader movement by placing descriptive-text reading materials in a mobile application. Its distinctive contribution is the locally designed combination of reading texts, audio, illustrations, and practice activities for a specific school context.

At the same time, technology adoption should not be equated with pedagogical success. Ertmer and Ottenbreit-Leftwich (2010) emphasized the role of teachers' knowledge, confidence, beliefs, and school culture in technology use. These considerations matter at SMAN 1 Sambelia because students' positive response to a new application may partly reflect novelty. Continued usefulness would depend on the teacher's ability to integrate the E-Course into lessons, the availability of suitable devices, and the quality and variety of the learning content.

The study also connects with research on reading comprehension at UNDIKMA. Firman et al. (2021) discussed challenges encountered by students when comprehending English texts, indicating the importance of learning resources that address comprehension difficulties. The E-Course offers a potential way to present reading passages with additional support, but the present thesis did not test whether audio or images reduced particular comprehension problems. This relationship is therefore pedagogical and contextual rather than evidence of a confirmed intervention effect.

Sandiarsa and Suhaili (2019) compared structured approaches in English speaking instruction, illustrating local attention to instructional alternatives. Although their research concerned speaking rather than reading or application development, it reinforces the value of examining how instructional procedures are implemented and

assessed. The current development study would benefit from a similarly explicit comparison in future work, such as contrasting E-Course instruction with otherwise equivalent printed materials using validated reading measures.

Limitations and implications

The study achieved its immediate development objective by producing an Android E-Course aligned with the identified needs and tenth-grade descriptive-text curriculum. The product was reviewed and revised, and the thesis described positive user responses. Nevertheless, its reported limitations included restricted content variety. The research did not establish that the application improved comprehension relative to other teaching methods, nor did it report longitudinal learning outcomes or comprehensive accessibility evidence.

These boundaries are important for interpreting the product responsibly. The initial findings support the feasibility of preparing locally relevant digital reading materials and suggest that learners appreciated the format. They do not justify general claims that Android applications are superior to printed texts or that audio automatically increases comprehension. Future evaluations would need documented user numbers, clear instruments, expert-validation scores, usability data, and comparable reading assessments before stronger conclusions could be drawn.

Table 2. Summary of the developed E-Course features

Feature	Documented purpose
Descriptive reading texts	Provide genre-focused reading content
Illustrations	Support contextual presentation of passages
Audio accompanying texts	Provide an additional listening representation
Exercises	Allow practice related to the reading materials

Android application interface	Organize access to E-Course materials

CONCLUSION

This study developed an Android-based E-Course for tenth-grade English reading materials at SMAN 1 Sambelia. Using the ADDIE framework, the researcher identified learner needs, organized descriptive-text content, developed an application containing illustrations, audio, and exercises, and revised the product after expert review and a try-out. The thesis reported favorable responses and judged the product suitable for the stated learning needs. Its principal limitation was the restricted variety of content. The evidence supports a conclusion about the development and initial suitability of the learning resource, not a verified causal improvement in students' reading comprehension.

RECOMMENDATION

Teachers may consider using the E-Course as a supplementary source of descriptive-text reading practice while ensuring that tasks align with students' proficiency and curriculum objectives. Developers should expand text types and topic variety, document usability and accessibility, and refine the audio and exercise functions. Subsequent research should report sample characteristics and expert-review scores transparently and evaluate learning outcomes with appropriate pretest–posttest or comparison-group designs.

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